

Resiliency

"the ability to recover from adversity"

Stormwater Management Commission Annual Report



2017
year in review



SMC Staff

Message from the Director Mike Warner, P.E., CFM

In 2017, Lake County experienced a devastating rainstorm that set new record flood heights on all our river gages in every watershed across the County. Several thousand homes, businesses, and public buildings were flooded, resulting in millions of dollars of damage. Many of the flooded structures were outside the floodplain and were damaged by flash flooding from the intense rainfall. Some areas received over six inches of rain overnight. The emergency response across the County was immediate, coordinated, and comprehensive, from first responders rescuing people from flooded vehicles, to road closures, sandbagging operations and cleanup supplies, to the first ever Multi-Agency Resource Center (MARC). The MARC provided flood weary residents household supplies to sustain their families and replace and rebuild their residence and means of support.

Looking back now, it is clear that we are resilient in Lake County, as we have successfully rebounded from this natural disaster and in the process, become better equipped, both individually and as a group of local governments, to address the next challenge we face. In response to the flood of 2017 and flood related damages, there are many efforts in progress in 2018, which include coordination with a wider government group, national flood policy reform, stormwater infrastructure funding and individual assistance. These efforts will further our abilities to meet and respond to emergencies as a coordinated countywide community and utilize all available resources, of which, we are fortunate to have in place in Lake County.

- Mike Warner

Bob Gardiner,
P.E., CFM,
Principal Permit
Engineer

Ashley
Warren, Water
Resource
Professional

Tim Cook,
CFM, CPESC,
CWS, Water
Resource
Professional

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Panateri,
Associate
Communications
Specialist

Dijana Silber,
Accounting Tech

Glenn
Westman,
PWS, CWS, CFM,
Principal Wetland
Specialist

Kurt
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CFM, LEED AP,
Chief Engineer

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GIS Analyst

Jacob
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Associate Water
Resource
Professional

Ernesto
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Water Resource
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Executive
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DRWW Technical
Coordinator

Mike Prusila,
CFM, Planning
Supervisor

Sharon
Osterby,
Water Resource
Professional

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Regulatory
Engineer
Supervisor

Wendy Morey,
Business Office
Supervisor

Kelcey Traynoff,
Senior Civil
Engineer

Neil
Schindelar,
Engineering
Technician

Mike Warner,
P.E., CFM,
Executive
Director

Board of Commissioners

Craig Taylor,
Chair - County
Board District 19

Kristina
Kovarik, Vice
Chair - Mayor,
Village of Gurnee

Leon
Rockingham,
Secretary—Mayor,
North Chicago

Nandia Black -
President, Village of
Kildeer

Alternate:
Michael
Danforth—County
Board District 17

Alternate:
Glenn Ryback -
President, Village of
Wadsworth

Alternate: Carol
Calabresa—
County Board
District 15

Alternate:
Mike Talbett—
Administrator,
Village of Kildeer

Steve Carlson
- County Board
District 7

Sandra Hart
- County Board
District 13

John Hucker -
Mayor, Village of
Beach Park

Brent Paxton—
County Board
District 4

Alternate: Tom
Weber—County
Board District 3

Alternate: Mike
Rummel—County
Board District 12

Alternate:
Richard Gust—
Trustee, Village of
Beach Park

Alternate: Bill
Durkin—County
Board District

Linda Pedersen
- County Board
District 1

Casey Urlacher—
Mayor, Village of
Mettawa

Donald Schmit
- Mayor, Village of
Fox Lake

Ann Maine,
Treasurer—
County Board
District 21

Alternate: Judy
Martini—County
Board District 5

Alternate: Roger
Byrne—Mayor,
Vernon Hills



2017 By the Numbers

Leveraging Funding and Partnerships for projects



\$2,468,354 Total Project Costs
\$595,700 SMC Funding and In-Kind
27 Projects Completed

Funding Ratio
\$4.1 : 1



25:1
Project / Program Partnerships

5 Municipalities
1 Park District
5 Townships
7 Not-For-Profits
5 Homeowners Associations
County, FPD
Granting Agencies: IEPA

2017 Water Quality Initiatives

Municipal Separate Storm Sewer Systems (MS4) Permit Program

The Illinois Environmental Protection Agency (EPA) reissued the ILR40 General Storm Water Permit for MS4s on February 10, 2016, with an effective date of March 1, 2016 and expiration date February 28, 2021. The permit contained a variety of new and modified requirements that will improve water quality and require local MS4 programs in Lake County to reevaluate their minimal control measures (MCMs).

SMC is a continual resource for Lake County's MS4 permit as a Qualifying Local Program (QLP) and perform activities in support of the MCMs. 2017 support included:

- Updated the Year 14 Facilities Annual Reporting template, which is an annual permit requirement.
- Posted numerous MS4 resources and educational materials for public consumption on the SMC website.
- Developed and deployed an online GIS based map service with water quality resources for use by MS4 communities.
- Provided educational opportunities at the Municipal Advisory Committee (MAC) quarterly meetings, including information on permit updates, template use, and important compliance information.

The Des Plaines River Watershed Workgroup (DRWW)

The DRWW is continuing to focus on implementing a comprehensive water quality monitoring program to meet permit requirements and study watershed stressors. In the fall of 2017, the DRWW Executive Board formed a task force to explore how data collected from the watershed can be used to simplify reporting under the federal MS4 Program.

- The task force is working on a plan to prepare and submit one annual MS4 report to the Illinois EPA on behalf of DRWW members.
- The task force initiated discussions with the Illinois EPA regarding a watershed-wide MS4 report and will work with watershed groups in other counties, state officials, and federal officials to develop the report.

2017 Project Summaries

Des Plaines River Watershed 319 Grant Efforts

The Des Plaines River Watershed-Based Plan will guide individual and collaborative efforts to protect and restore water quality, reduce flood damage, and protect and enhance natural resources in the 235 square mile Des Plaines River Watershed planning area.

SMC developed a draft Small Watershed Assessment and Action Planning (SWAAP) report to summarize the efforts to transition two locations within the Des Plaines Watershed Planning Area. A draft version of the SWAAP was submitted to the Illinois EPA and will be completed in 2018.

Three Best Management Practice (BMP) projects were completed in 2017 as part of the larger Des Plaines River Watershed project:

- College of Lake County (CLC) Parking Lot Bioswales: CLC installed over 2,500 linear feet of native vegetation bioswales within and adjacent to four of their parking lots.
- Mundelein Park and Recreation District: a streambank stabilization project was implemented in Bull Creek at six locations throughout the creek, totaling 250 linear feet.
- Lake County Forest Preserve District (LCFPD): implemented agricultural BMPs by designing a project to filter runoff and remove suspended sediment, nutrients, and other nonpoint source pollutants.



Bull Creek Restoration

Bull Creek is a ravine at the bottom of three tributaries within the Dead River Watershed. It flows through Beach Park, into Illinois Beach State Park and enters Lake Michigan. The Bull Creek Stream Restoration Project was completed in 2017. The project included restoring and stabilizing 1,475 feet of stream corridor areas, implementing best management practices such as rock toe and riffles, and installing more than 6,500 native plant plugs. With heavy rain, this creek system experiences significant increases in water volume which leads to damage from erosion and ultimately large amounts of sediment and nutrients deposits into Illinois Beach State Park and Lake Michigan. The project goal was to reduce nearshore and nonpoint source pollution, and to improve water quality in Lake Michigan.

The restoration work anticipates reducing the following pollutants:

- Nitrogen (2.4% reduction)
- Phosphorus (5.4% reduction)
- Sediment (36.4% reduction)



Municipal Advisory Committee (MAC)

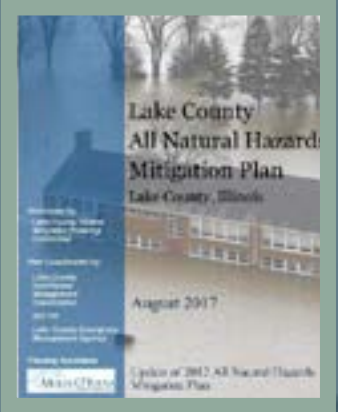
MAC continues to serve as a resource for local government representatives on inter-jurisdictional issues, projects, NPDES Phase II programs, and committee and administration recommendations. 2017 highlights include:

- Darren Monico, Buffalo Grove Village Engineer (chairman) and Chris Bouchard, RHMG Engineers, Inc. (vice-chair) continue their support in offering input and presiding over MAC meetings.
- Presentations were given to inform MS4 communities on new technological tools and improvements for permit compliance and reporting (SMC Drone Program and 2018 Flash Flood Response Overview).
- Water quality improvement projects were presented for potential beneficial impact, including stormwater utility programs, stream and wetland restoration, and large scale stormwater reservoir projects.
- MAC members also received presentation showcasing how communities are working together.

All-Natural Hazards Mitigation Plan (ANHMP)

The ANHMP identifies activities and projects to reduce the damages caused by natural hazards such as tornadoes, floods, and severe summer and winter storms. The ANHMP must be updated and re-adopted every five years to maintain grant eligibility. The 2017 ANHMP update was adopted by the County on October 10, 2017 and is the second update of the original 2006 ANHMP.

This plan is multi-jurisdictional, meaning the County and its municipalities must adopt the ANHMP and will be implemented and maintained both countywide and through individual initiatives, as funding and resources become available. The ANHMP is required by FEMA in order for Lake County and its municipalities to be eligible for FEMA mitigation grant funds.



Homeowners Floodproofing Expo and Workshop

On July 12, 2017, Lake County experienced record flooding, resulting in flood damages to about 3,500 homes. In response to this, and looking to create a place where residents could learn about different options for minimizing losses and decreasing future flood damage, SMC hosted the 2017 Homeowners Floodproofing Expo and Workshop. Property owners learned about various products, services, and solutions to minimize flood damages to homes and properties. Over 300 people attended the expo, which included a vendor exposition.

Utilizing Drone Technology

Days before the flood, SMC acquired a drone to improve task efficiencies and expand capabilities in areas with access limitations. Drone usage includes regulatory site inspections, generate site-specific topography, building and facility inspections, indoor and underground applications, and disaster/emergency response. When the flood hit, the drone was used to fly over areas that were inaccessible. Staff was safely able to complete damage assessment by using drone video and pictures collected, which helped keep the assessment process moving efficiently and quickly.

In late 2017, Lake County Board Chairman Aaron Lawlor and SMC's Neil Schindelar appeared in the drone technology edition of Lake County's Dirty Jobs. The video highlights how Lake County is consistently leveraging technology, most recently through the technology provided by drones, to improve the effectiveness and efficiency of operations.



Deicing Practices Workshop

Road salt and other deicing materials are needed to keep Lake County's roads, parking lots and sidewalks safe, but the products used can impact our water quality. The Lake County Health Department, Stormwater Management Commission, Division of Transportation and the Public Works department teamed up to offer deicing workshops to public agencies and private contractors. The goal was to teach workshop attendees how to wisely use road salt to reduce environmental impacts and save money but still keep the roads safe for Lake County drivers. 232 attendees participated in the 2017 Lake County Deicing Workshop. Since 2009, the workshop has brought in over 1,200 participants. These efforts have contributed to the 2018 Excellence in Snow and Ice Control Award received by Lake County from the American Public Works Association (APWA).



Flood-Prone Property Buyout Program

The voluntary acquisition of repetitively flooded buildings is one of Lake County's most cost-effective mitigation strategies. A recent study published by the Multi-hazard Mitigation Council, states that the average Benefit-Cost-Ratio (BCR) for this mitigation strategy is approximately 7:1, an increase from 5:1 reported in 2005. The benefits quantified include: avoided property damages and loss, sheltering, reduced flood insurance claims, and avoided personal injuries are all together 7 times greater than the cost to implement the project.

In July 2017, Lake County received rainfall amounts between 3.4 and 7.2 inches. The combination of the July 11 and 12 storm events, and the heavy rainfall from previous weeks in Wisconsin and McHenry and Lake Counties in Illinois, resulted in flash flooding and riverine flooding along the Fox, Des Plaines and North Branch rivers. The widespread flooding impacted property owners and damaged thousands of structures in Lake County. From the start of this program in 1998 through 2017, Lake County SMC has received federal and state funding of \$16.5 million to acquire 220 flood-prone properties. SMC continues to pursue federal, state, and other funding in order to administer the Voluntary Flood-Prone Property Buyout Program to reduce disaster related losses and protect life and property from future disasters.

Photo: Route 132 near Grand Avenue in Gurnee, IL July 2017

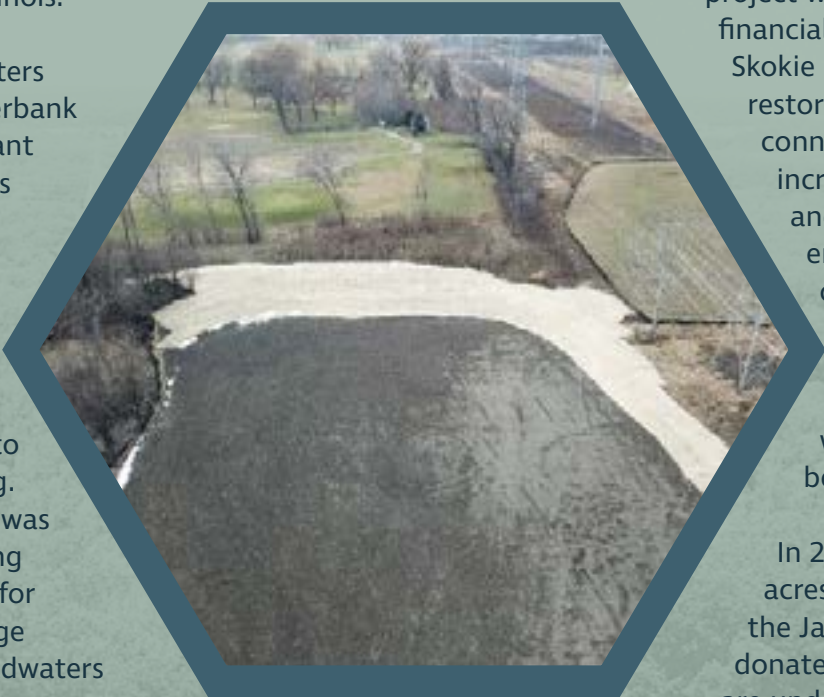


Jaime Property Project

The project area known as the Jaime Property is six acres of land located south of Martin Luther King Jr. Drive and east of US Route 41 in North Chicago, Lake County, Illinois.

The Skokie River headwaters area has experienced overbank flooding causing significant damage to properties. As a result, flood storage feasibility studies were conducted and identified the Jaime Property project area as a potential site for drainage improvements to alleviate riverine flooding. In 2012, the Jaime parcel was donated to SMC, providing a much-needed location for flood control and drainage improvements in the headwaters of the Skokie River.

Through collaborative partnerships with SMC, ComEd, the City of North Chicago, the



East Skokie Drainage District, and other local partners, Jaime Property Phase III and the Skokie River Overland Flow Path Re-Establishment project were completed with financial support from the East Skokie Drainage District. The restoration of the hydraulic connection to the Skokie River increased floodplain function and storage capacity through enhancement and creation of additional wetland areas. Site excavation, seeding and stabilization was completed in 2017 with wetlands enhancements to be completed in early 2018.

In 2017, an additional six acres of property adjacent to the Jaime property was also donated to the SMC. Discussions are underway for the potential expansion of the project to further increase flood storage potential in the area.

Wetland Restoration and Preservation Plan (WRAPP)

SMC will finish development of the Wetland Restoration and Preservation Plan (WRAPP) for Lake County in 2018. The WRAPP will identify local wetland functions, as well as identify opportunities for preserving, restoring, and enhancing wetlands in the County. In 2017, SMC used field data to calibrate the study results and update the geographic database (map layers), develop the concept for an online decision support tool and mapping application, and develop a draft technical report. After undergoing quality assurance and quality control procedures, the data and plan report will be released in 2018.

The overall objectives for developing the WRAPP include enhancing floodwater storage, surface water quality improvement, groundwater recharge, aquatic and wildlife habitat, and recreational and aesthetic benefits for communities. The project is funded by a \$159,489 USEPA Wetland Program Development grant with in-kind match and is scheduled to be completed in 2018.

Staff Acknowledgements

Patty Werner joined the SMC team June 16, 1996 as a Watershed Planner, and she quickly worked her way up to Planning Supervisor. It's impossible to describe the impact she's had over her 21 dedicated years of service. From helping to establish SMC's watershed planning group as a nationally recognized resource, to enhancing and expanding educational workshops, Patty's expertise was instrumental to the environmental work in Lake County.



A few of Patty's major projects included Bull Creek Restoration, designing and incorporating green infrastructure at the County's Central Permit Facility, watershed and subwatershed planning, and creating the first flood hazard mitigation plan for the county. Her dedication, service and influence will be remembered, and we wish her all the best.

New Staff Members

Jacob Jozefowski

Associate Water Resources Professional: Jacob assists with watershed assessment and planning; stormwater and watershed management program development; and surface water monitoring.



Angela Panateri

Associate Communications Specialist: Angela assists Stormwater with all of their communication needs including: website edits and recommendations; managing social media accounts; evaluating all associated analytics; and providing media/public relations counsel, direction, and oversight.



2018 Major Initiatives

IL EPA Section 319 Grant Award: Libertyville Township Bull Creek Headwaters Restoration Project

The Libertyville Township Bull Creek Headwaters Restoration Project will stabilize eroding gullies, restore 10 acres of wetland and stabilize a total of 44 acres of agricultural row crop fields to permanent vegetative cover using deep-rooted native plant species. The elimination of the active erosion and lower runoff volume

will reduce sediment, phosphorus, and nitrogen loads to the north branch of Bull Creek, to Peterson Pond and the downstream reach of the Des Plaines River, which are impaired.

Des Plaines River Watershed Planning and Projects

The Des Plaines River Watershed-Based Plan made a lot of progress in 2017 and is scheduled for completion in May 2018. Once the watershed-based plan is completed and approved by the Illinois EPA, SMC will reach out to watershed stakeholders for community adoption of the watershed-based plan. The Des Plaines River Watershed-Based Plan will

be used as a guide to restore watershed lakes, streams, and wetlands to a healthy condition while reducing the impacts of water pollution and flood damage for residents and businesses. This watershed-based plan will provide community and stakeholder organizations eligibility for grant funding to implement projects and programs recommended in the plan.

More to Come in 2018

- The North Branch Chicago River Watershed Workgroup (NBWW) was established in January 2018, and the NBWW will work with their members and local partnerships to develop a watershed monitoring strategy.
- SMC and Northwater Consulting have compiled site specific best management practices (BMPs) and prepared for pollutant load reduction estimates when the pollutant load model is completed.
- Training workshops, outreach, and education efforts



STORMWATER MANAGEMENT COMMISSION

*Thank you for
your support!*